CLAIMS

1. A method of adjusting the amplitude of a radio-frequency signal, the method comprising:

splitting (104, 114) an input signal received at amplitude adjustment into one or more signal pairs, each signal pair comprising two partial signals having an equal amplitude;

generating (106, 116) an inverse-phase-sized phase difference between the partial signals of each signal pair, **characterized** by:

adjusting (108, 118) the amplitudes of the partial signals of each signal pair by employing the mutual magnitude of the amplitudes of the partial signals as the factor controlling the adjustment, and

summing up (110, 120) the amplitude-adjusted partial signals as an output signal.

2. A method of adjusting the amplitude of a radio-frequency signal, **characterized** by:

splitting (104, 114) an input signal received at amplitude adjustment into one or more signal pairs, and splitting the input signal of a signal pair into two partial signals in a weighted manner;

generating (106, 116) an inverse-phase-sized phase difference between the partial signals of each signal pair;

adjusting (108, 118) the amplitudes of the partial signals of each signal pair by employing the mutual magnitude of the amplitudes of the partial signals as the factor controlling the adjustment, and

summing up (110, 120) the partial amplitude-adjusted signals as an output signal.

3. An amplitude controller for adjusting the amplitude of a radio-frequency signal, the amplitude controller comprising:

means for splitting (302A) an input signal at amplitude adjustment into one or more signal pairs, each signal pair comprising two partial signals;

means for generating (302B) an inverse-phase-sized phase difference between the partial signals of each signal pair, **characterized** in that the amplitude controller comprises:

means for adjusting (302C, 302D, 302F) the amplitudes of the partial signals of each signal pair by employing the mutual magnitude of the amplitudes of the partial signals as the factor controlling the adjustment, and

means for summing up (302E) the partial inverse-phased and amplitude-adjusted signals as an output signal.

4. An amplitude controller as claimed in claim 3, **characterized** in that the amplitude adjustment means comprise a first adjustment means pair comprising an adjustment means for each partial signal of a signal pair, and the amplitude adjustment means comprise a second adjustment means pair comprising an adjustment means for each partial signal, and the adjustment means of the adjustment means pairs are adjusted by mutually inverse controls.

5. An amplitude controller as claimed in claim 3, **characterized** in that the signal splitter means are configured to split the signal into two partial signals propagating along different signal paths.

6. An amplitude controller as claimed in claim 3 or 4, **characterized** in that the amplitude adjustment means comprise at least one adjustable resistor for each partial signal of a signal pair.

7. An amplitude controller as claimed in claim 6, **characterized** in that the partial signal is transferred in the amplitude adjuster through an adjustment resistor.

8. An amplitude controller as claimed in claim 3, **characterized** in that the input signal splitter means and the phase difference generation means comprise:

a primary winding;

a first secondary winding in inductive connection to an output coil;

a second secondary winding in inductive connection to an output coil, and

the polarities of the first secondary winding and the second secondary winding being inverse for generating inverse-phased partial signals.

9. An amplitude controller as claimed in claim 3, **characterized** in that the phase difference generation means comprise a series-coupled transmission line pair having a total length of 90° compared with the wavelength of the signal, the conductors of said transmission line pair being cross-coupled for generating a 270° phase shift for the partial signal.

10. An amplitude controller as claimed in claim 3 or 4, **characterized** in that the amplitude adjustment means comprise a dual diode, and the dual diode comprises a diode for each partial signal of a signal pair for adjusting the amplitude of the partial signal.

11. An amplitude controller as claimed in claim 3, **characterized** in that the phase difference generation means comprise a first amplifier for amplifying a first partial signal and a second amplifier for amplifying a second partial signal, the amplifications of the first amplifier and the second amplifier being mutually inverse.

12. An amplitude controller as claimed in claim 4, **characterized** in that the first and second amplitude adjustment means pairs are placed in the partial signal branch at a distance of $\lambda/4 + n^* \lambda/2$ or $90° + n^*180°$ ($n = 0, 1, 2, 3, \ldots$) from each other for cancelling out the non-idealities of the adjustment means.

13. An amplitude controller as claimed in claim 4, **characterized** in that at least one amplitude adjustment means pair is an adjustable resistor pair whose resistors are directly coupled together for splitting a signal into partial signals or for summing up the partial signals as an output signal for the adjuster.

14. An amplitude controller as claimed in claim 4, **characterized** in that the adjustment means of the first adjustment means pair and the second adjustment means pair that are directed to the same signal are adjusted by the same control.